OUTREACH

UNIMAS RESEARCH BULLETIN | Vol.3 No.1 ISSN : 1985-2053

Coastal Malay Communities of South-Western Sarawak

Service Quality in Bako National Park

Harmful Algal Blooms in Malaysia

Integrated Hydrosystem Approach for Sarawak River Basin

Fast Facts on UNIMAS

Date established	**24 December 1992**	
Campus Site	**Kota Samarahan, Sarawak, Malaysia (about 25 km from the city of Kuching, the capital city of Sarawak)**	
Present Vice Chancellor	**Prof Dr Khairuddin Ab Hamid**	
Student Enrolment (Academic Session 2008/2009)	Undergraduate	6,500
	Postgraduate	647
	Total	**7,147**
Full time staff	Academic	663
	Management	131
	Support	1001
	Total	**1795**

Faculties
Faculty of Applied and Creative Arts (FACA)
Faculty of Cognitive Sciences and Human Development (FCSHD)
Faculty of Computer Science and Information Technology (FCSIT)
Faculty of Economics and Business (FEB)
Faculty of Engineering (FE)
Faculty of Medicine and Health Sciences (FMHS)
Faculty of Resource Science and Technology (FRST)
Faculty of Social Sciences (FSS)

Institutes
Institute of Biodiversity and Environmental Conservation (IBEC)
Institute of East Asian Studies (IEAS)
Institute of Health and Community Medicine (IHCM)

Centres
Centre for Language Studies (CLS)
Centre for Academic Information Services (CAIS)
Centre for Student Development (CSD)
Centre for Technology Transfer and Consultancy (CTTC)
Centre for Information and Communication Technology Services (CICTS)
Centre for Applied Learning and Multimedia (CALM)
Research and Innovation Management Centre (RIMC)
Centre for Graduate Studies (CGS)

Centres of Excellence
Malaria Research Centre
Centre for Water Research
Centre for Rural Informatics
Centre for Image Analysis and Spatial Technologies

International Linkages
54 International Partners Worldwide

Centre for Academic Information Services

Volume of Books	121,951
Sets of Media Materials	8,036
Journal Titles (Print and Electronic)	18,458

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Introduction to This Issue

Prof Gerardus t' Hooft (1999 Noble Laureate for Physics) during his recent keynote lecture at UNIMAS stressed that "differences are the basis of life". In UNIMAS, we celebrate difference as it is our strength. In this issue, we highlight the awards received, research conducted and international conferences organised. We have continued to extend our expertise beyond our gate through partnerships with the state government and the private sector. We offer innovative solutions to boost the economy and develop our communitites. In Outreach, we celebrate our achievements, our contributions to society and industry and take stock of future directions.

Happy New Year! May 2009 be a productive and successful one for all of us.

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RESEARCH NEWS

Nobel Laureate Keynote Lecture

On 18 November 2008, UNIMAS was given the honour to host a public lecture by the 1999 Nobel Laureate for Physics, Prof Dr Gerardus t' Hooft. The lecture officiated by the Vice Chancellor of UNIMAS, Prof Dr Khairuddin Ab Hamid, was presented to a packed audience of academicians, local government officials, NGOs as well as members of the media.

In his keynote lecture "Education and Collaboration in Fundamental Science as Bridges Between Nations" he emphasised that it was differences that exist between various parts of the world that has drawn the scientific community together. Regarded as one of the most influential particle theorists in history, Prof t' Hooft revolutionised high-energy physics in the late 20th century. His remarkable contribution to research in this area has not only earned him the Nobel Prize, but also a name on an asteroid, 9491 Thooft.

The public lecture is part of a series in a programme called "Bridges: Dialogues Towards a Culture of Peace" which runs public lectures by seven Nobel Laureates and a world renowned figure, the Reverend Jesse Louis Jackson Sr., in Malaysia and Thailand from November 2008 to April 2009.

UNIMAS and the International Peace Foundation took two years to finally have Prof t' Hooft at UNIMAS. It was a great honour to the University and Sarawak as UNIMAS is one of the few privileged public universities in Malaysia to host such an event.

UNIMAS in the Economist

UNIMAS was recently mentioned in an article in The Economist (a London based international publication). In an article which appeared on 25 September 2008, Prof Dr Narayanan Kulathuramaiyer was quoted as an expert in data mining from UNIMAS. He commented on privacy issues related to the mining of databases. He is currently the Dean at the Faculty of Computer Science and Information Technology and his area of specialisation includes Artificial Intelligence, Data and Text Mining, and Knowledge Systems Modeling.

UNIMAS and Malaysian Pepper Board

In November 2007, UNIMAS and three other institutions of higher learning in Sarawak signed a Memorandum of Understanding (MoU) with the Malaysian Pepper Marketing Board (MPB) to design and develop a mechatronic harvester and a solar-powered pepper dryer. A year later, in October 2008, MPB visited the Faculty of Engineering and the Faculty of Resource Science and Technology to evaluate the progress of these research projects.

UNIMAS Team Wins Awards

The Augmented Reality Group of UNIMAS led by Dr Edmund Ng Giap Weng, Faculty of Cognitive Sciences and Human Development, did Malaysia proud by winning the Merit award at the Asia Pacific Information and Communications Technology Alliances (APICTA) Award in Indonesia in November 2008. The event was supported by 16 member countries which included Australia, Singapore and China.

The win came just weeks after the team swept top awards in three categories at the MSC Malaysia APICTA 2008 in October 2008. The categories and the winning projects were Best of Tourism and Hospitality - An Augmented Reality System for Recognising Text on Street Signs for Tourism; Best of Tertiary Student Projects – Software / Hardware for Finger Tracking and Barehand Posture as an Input Device Using Augmented Reality and Best of Tertiary Student Projects – Creative Multimedia for An Interactive Augmented Reality Games: 3D Aeroplane Games (3D CoolPlane).

Awards by FACA

The Faculty of Applied and Creative Arts won a string of awards for UNIMAS. In October, Dr Hjh Nazlina Shaari and Assoc Prof Dr Hj Khairul Aidil Azlin Abd Rahman won a silver award at BIOMALAYSIA 2008 for their formulation of a natural paste for textile printing called Bio-paste. BIOMALAYSIA is Malaysia's premier biotechnology conference and exhibition. Held annually, this event attracts biotechnology participants from around the world.

In November, the faculty won two gold medals at the 2nd International Invention Fair of the Middle East IIFME 2008 which was held in Kuwait. Gold medals went to their Mobile Emergency First Aid Kit for Paramedic and Rescue Team (Researchers: Musdi Shanat, Maizatul Nurhuda Saadon, Assoc Prof Dr Khairul Aidil Azlin Abd Rahman) and Compact Rescue Stretcher (Researchers: Assoc Prof Dr Khairul Aidil Azlin Abd Rahman) Dr Nazlina Shaari, Norhayati Suleiman and Rohaya Yahaya also won third place at the Piala Seri Endon Batik Competition 2008 held at the Putra World Trade Center on the 23 November 2008. Their design theme INNOVATE was inspired by ethnic motifs. It represented a fresh, new look in batik and promoted the use of local materials.

RESEARCH HIGHLIGHTS

Coastal Malay Communities of South-Western Sarawak

Researchers : Prof Abdul Halim Ali, Prof Datuk Dr Abdul Rashid Abdullah, Awang Mashabi Awang Mohamad, Mohd Faisal Syam Abdul Hazis, Mohd Nizar Yaakub, Mohd Suhaidi Salleh, Zamri Haji Hassan

For the past 40 years, Sarawak has been transformed in dramatic ways. This research is an ethnographic study on the coastal communities of Sarawak. It seeks to explain the lives of the coastal dwellers in the context of wider national politics, social and economic systems; and to understand selected facets of their lives at the local level. In particular, it endeavours to explain social change in Malaysia.

By focusing on the coastal communities of Sarawak, we seek to understand the effect of various institutions and social processes within the community. The research is based on a survey of 800 selected from a population of 14,864 that settled in 14 villages, about 150 km from Tanjung Datu to Tanjung Po.

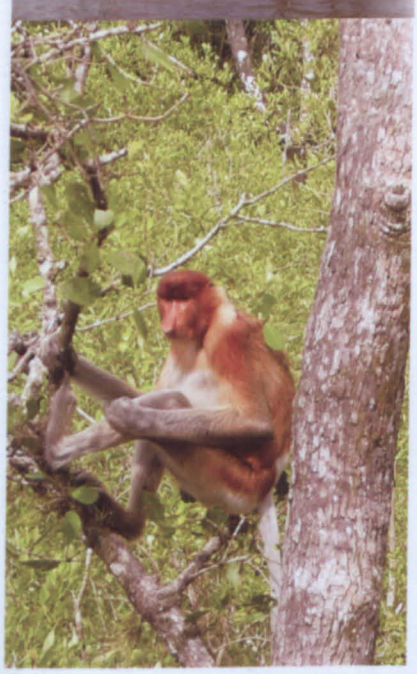
The survey revealed that there has been a reduction in the coastal activity compared to half a century ago. At the end of the 1950s, the coastal community began to enter the labour market. Between market forces and the state, the latter played a pivotal role in social change. The state also seems to dominate the tourism industry in this isolated rural area and continues to play a direct role in the political culture of this coastal community.

Only in land regulation do the market forces dominate compared to state role. This is felt because of Sarawak's specific history under Brooke rule. In addition, labour-market segmentation has thrown many coastal communities to the secondary sector, a sector defined by low skill, poor work status, and exposure to market forces. Community self-help is important to counteract market forces now, but under the onslaught of globalisation, community self-help may disappear.

However, coastal communities in Sarawak will increasingly be impacted by market forces as globalisation reaches their shores and with it, a rolling back of the State will be inevitable.

Service Quality in Bako National Park

Researchers: Fazlina Yaakub, Assoc Prof Dr Ahmad Shuib, Abas Said



Bako National Parks offers beautiful and unique scenery and immeasurable opportunity for wildlife viewing in pristine natural habitats. Despite its natural appeal, the number of tourists visiting the park has declined. In view of this, a study was conducted to measure tourists' satisfaction with the quality of service and facilities provided in Bako National Park by evaluating their expectations relative to their perception or actual experience while visiting the park.

A survey of 68 visitors showed that Australians were top in the list of international tourists. The results of the survey revealed that the tourists were satisfied with the flexible operating hours and the attire of the employees. The employees' smart uniform allowed them to be recognised as park employees.

However, the park was below tourists' expectation in terms of facility maintainance, safety measures, cleanliness and provision of information. It was found that expectation of International visitors for information were not met.

The study revealed that wage earners in the private and government sectors were more satisfied with the service quality in Bako National Park than self-employed visitors which included students, pensioners and housewives. The female visitors were more dissatisfied with responsiveness of the employees compared to male visitors. In this respect, international tourists were more dissatisfied. Local tourists may already be accustomed to the lower quality of service and facilities at most national parks and do not have high expectations.

When resources at the park are sustainably used and managed, tourists leave the park with a higher level of satisfaction and this would attract more tourists. The communities near the park would then derive greater socio-economic benefits from the heightened tourist activity.

HARMFUL ALGAL BLOOMS IN MALAYSIA

Researchers: Dr Lim Po Teen, Dr Samsur Mohamad, Dr Leaw Chui Pin, Prof Gires Usup, Prof Yasuwo Fukuyo, Prof Takehiko Ogata, Dr Atsushi Kobiyama, Hartina Mohamad Ali, Lim Hong Chang, Suriyanti Su Nyun Pau

Harmful algal bloom (HAB) or more commonly known as red tide is a natural phenomenon which causes water discolouration in the aquatic environments. Blooms of HAB species in great density resulted in oxygen depletion in water bodies and subsequently kill fish in the natural habitats and aquaculture.

The harmful effect of the blooms not only poses a threat to the marine ecosystems but also to public health and coastal economies. Certain groups of HAB species produce biotoxins that accumulate in shellfish or finfish, leading to human toxification due to consumption of contaminated seafood. In a recent incident, toxin-containing aerosols produced during the blooms of these toxic species caused human respiratory and derma problems and therefore affect beach tourisms.

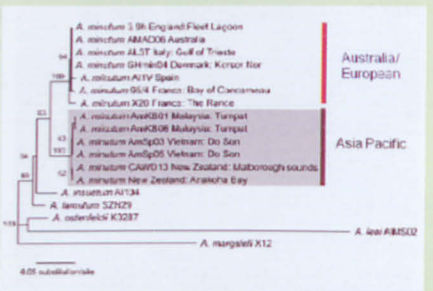
In the Marine Biotoxins Laboratory, Department of Aquatic Science, we have been working on some of the organisms, particularly diatoms and dinoflagellates (phytoplankton) that cause HABs and related shellfish poisoning including the paralytic shellfish poisoning (PSP), amnesic shellfish poisoning (ASP), and ciguatera fish poisoning (CFP). We have successfully identified the causative organisms responsible for several PSP events in the country such as *Alexandrium tamiyavanichii* and *A. minutum* that were responsible for the incidence in Sebatu, Malacca and Tumpat, Kelantan.

Our research findings also contributed to two new records of PSP toxins-producing dinoflagellates species, *A. taylori* and *A. peruvianum*, in Malaysia. In addition to ecological studies of the PSP-producing dinoflagellates, our research also covers the growth physiology, molecular phylogenetics and population genetics as well as toxin production of these particular groups of harmful species.

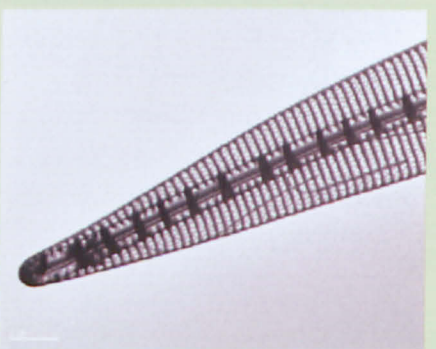
Eco-physiological studies of our tropical toxic strains have provided new insights in understanding the bloom dynamics of tropical species. Toxicity studies of PSP toxins (saxitoxins) using HPLC and LC/MS/MS have provided us with detailed information on the toxicity of toxic species. A novel analog of saxitoxins (deoxy GTX40-12ol) was described from one of the causative species, *Alexandrium minutum.*

For the past few years, our research has expanded with collaboration at national and international levels. Our current focus is on ASP and its causative species. A systematic and molecular taxonomic study has been initiated in parallel with the toxicity study of similar class toxin, domoic acid. Domoic acid produced by several genera of diatom, *Pseudo-nitzschia* spp., *Nitzschia* spp. and *Amphora* sp. are known to be responsible for shellfish poisoning due to the contamination of shellfish mollusk.

Reports of HABs incidence are on the rise with the expansion of aquaculture industries in the country to cater to both domestic and export market. HABs research is important to assist the industry to achieve certain regulatory requirement for seafood products. Better understanding of HABs organisms and their toxicity would certainly assist the relevant authority to better manage and mitigate HABs events.



Phylogenetic study of *A.minutum* (responsible for paralytic shellfish poisoning)



Transmission Electron Microscope enlargement of *Pseudo-nitzschia* spp.

Integrated Hydrosystem Approach for Sarawak River Basin

Researchers: Charles Bong Hin Joo, Prof Dr Frederik Josep Putuhena, Professor Dr Salim Said, Rosmina Ahmad Bustami

Hydrosystem is a term usually used to describe collectively the technical areas of hydrology, hydraulics and water resources including the application of economics, optimisation, probability, statistics, and management. In other words, to achieve integrated management in Sarawak River Basin, the approach is to view the basin as a system. By understanding the characteristics and components of this system, effective sustainable development and management could be implemented in the basin.

In the case of the Sarawak River Basin in Kuching, the system is envisaged to be made up of water resource, wetland management and sustainable urban development. With this view, the issue regarding each component cannot be approached separately because each of the components is interrelated and will influence each other (Figure 1).

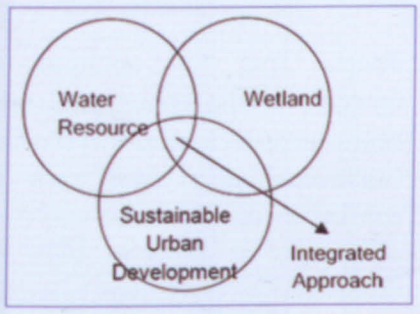


Figure 1: Integrated Management of river basin

The current focus of the research is on the water resource component. Thus, the main objective of the current project is to understand the high and low flow characteristics of the basin through flooding frequency and low flow analysis. We also aimed to develop a framework for the integrated management of the water resource in the basin so that excess water during high/flood flow could be better utilised especially during dry/low flow season.

To understand the basin high flow characteristics, the research team has performed rainfall frequency analysis for the 23 rainfall stations in the basin. The result is a graph of Daily Maximum Rainfall (DMR) divided by Average Maximum Rainfall (ADMR) versus reduced variate that could be used for flood estimation in the basin (Figure 2).

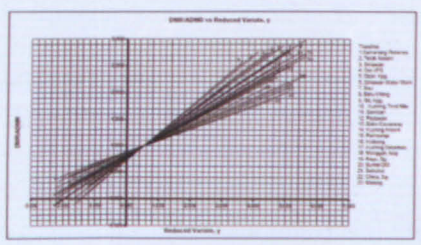


Figure 2: Rainfall frequency analysis

The low flow study is an ongoing study. With increasing population and the possibility of climate change in the basin, the research team noticed a particular trend in the low flow and rainfall data collected between 1960 to 2007. It is still under further investigation), it is necessary to have a low flow study to better prepare for low flow situation in the near future. One of the ways to prevent low flow period from affecting the routine activities in the basin is to have a storage mechanism to store excess water during high flow period. The research team is currently looking for a suitable location in the basin for this purpose. Our team has developed a simulation model for the basin using ArcGIS and InfoWorks RS softwares to better understand the hydrologic characteristics of the basin (Figure 3).

Figure 3: Simulation model for Sarawak River Basin

The research team are planning to conduct a workshop involving various stakeholders to get their opinion and feedback for establishing a common goal and objective in managing and developing the water resource component of the basin.

PRODUCTS AND TECHNOLOGY TRANSFER

Mechatronic Pepper Harvester for Hilly Terrains

Researchers: Dr Ir Mohammad Shahril Osman, Shahrol Mohammaddan, Noor Hisyam Noor Mohamed, Aidil Azli Alias, Siti Nor Ain Musa, Shamsiah Suhaili, Abg Mohd Nizam Abg Kamaruddin, Nur Tahirah Suhaili, Maimun Huja Husin, Kasumawati Lias

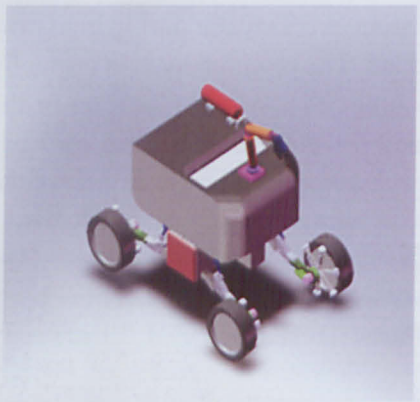


Figure 1: Preliminary design of a mechanise pepper harvester.

Pepper is a popular spice grown in Sarawak, Malaysia. Pepper vines grow well on hilly terrain. This makes pepper harvesting laborious, hazardous and time consuming. This project aims to design and develop a mechanised pepper harvester that can be used on slopes. This design uses technology which consists of a chassis which houses the manipulator arm designed to cope with the average height of a pepper vine. The manipulator is connected to end-effectors that are specially designed for this purpose.

Figure 1 shows a preliminary conceptual design for the Pepper Harvester. Using Axiomatic Design concepts the proper functions and requirements are formulated. In addition, problems associated with the harvesting of pepper are identified using surveys and interviews with farmers and Malaysia Pepper Board (MPB) agency officials. Once all the parameters are acquired, Computer Aided Design (CAD) software will be engaged to outline the detail.

Solar-based Pepper Berries Dryer

Researchers: Assoc Prof Dr Ir Andrew Ragai Henry Rigit, Ervina Junaidi, Dr Rubiyah Baini, Almon Chai Wei-Yen

This project is on the design and development of a solar based dryer for drying pepper berries. The project can be divided into two stages: design and development. In the first stage, critical parameters such as the properties, characteristics, and the drying curve of the pepper-berries will be determined in order to add the design of the dryer. A computational fluid-dynamics solver will then be utilised to perform computational simulation of dryer. The computational solver can perform the simulations to obtain visual presentation of the operations within the solar based dryer such as the air flow patterns and heat transfer.

These will decide whether the dryer design is workable. In the second stage, development and fabrication will be carried out based on the established parameters for the dryer design. This will optimise the function of the constructed solar based pepper berries dryer. This constructed dryer will then be applied in the sub-rural and rural plantations or farms to assist the farmers in processing their harvested pepper berries.

Free-living Nematodes in Sarawak Coastal Waters

Researchers: Prof Dr Shabdin Mohd Long, Dr Samsur Mohammad

Nematode communities are important prey component in the marine and estuarine food webs, which serve as food sources for higher trophic levels. Nematodes are also known to be sensitive indicator of environmental perturbations. This is due to the characteristics which they possess, such as their occurrence in large numbers, relatively stationary life habits, short generation times, and their ability in accumulating various contaminants. Nematodes studies in Sarawak, however, are still at the infancy stage. Therefore, fundamental knowledge of the nematodes in this region is very much lacking and these include: the taxonomy of the species occurring in Sarawak waters; their patterns of diversity and the relationship between the nematodes community structure; their potential role as pollution bioindicator; and their potential as diet for juvenile fish, prawn, and crab in the aquaculture industry. In order to answer some of these questions, a study is conducted to investigate the community structure of nematodes species and its relation to physico-chemical parameters at the Sarawak coastal waters. This study will provide a database on the taxonomy and ecology of free-living nematode species in Sarawak which is important for the purpose of future pollution monitoring in Sarawak coastal waters. Furthermore, several nematode species can be selected from the database for culture as an alternative diet in aquaculture industry in the future.

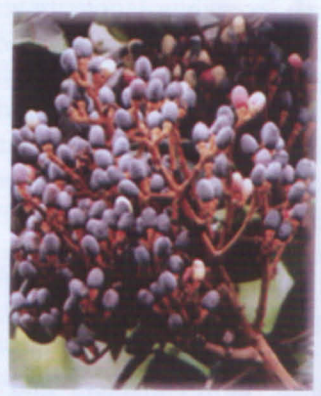
Male / Female Differentiation for Sibu Olive

Researchers: Dr Ho Wei Seng, Ting Jen Ching, Lau Cheng Yuon, Assoc Prof Sim Soon Liang

Dabai (*Canarium odontophyllum Miq*) is locally known in Sarawak as Sibu olives. It is an important indigenous fruit species with immediate potential for commercial exploitation. It has been domesticated in Sarawak and cultivated extensively in Sibu, Kapit, Sarikei, and Limbang.

Dabai is dieocious with male and female flowers borne on different trees. The male trees are usually chopped down for economic purposes in order to save space and labour cost. It is desirable that only female trees are cultivated in the field to increase the fruit production and profitability. Unfortunately for dabai growers, there is no way to determine the sex of dabai from the external morphology of embryogenic form. Seed is still the most practical and economical propagation method of raising the crop due to the difficulties in propagating the tree using vegetative methods such as cuttings and grafting. The sex of the seedlings is known only after the trees attain reproductive maturity, that is after four years.

Thus, the objective of this project is to determine the sex of dabai trees using molecular DNA marker technologies by developing the sex-specific DNA markers. With the development of these markers, it is anticipated that the early sex identification of dabai seedlings using molecular marker approach prior to the flowering stage would avoid the need for removing the male trees from the field, thus saving labour, time, and other resources.



NETWORKING

UNIMAS-UK Partnership

The Faculty of Social Sciences, has successfully secured a research grant from the United Kingdom Prime Minister's Initiative (PMI II) for International Education Connect scheme. The grant will support a collaborative research project 'Towards culturally sensitive disability studies: Interconnections of disability studies in and across Malaysia and the UK' between researchers from the Department of Sociology and Anthropology, Faculty of Social Sciences, UNIMAS, and the Research Institute of Health and Social Change, Manchester Metropolitan University, UK. The UNIMAS team is led by Dr Ling How Kee.

The main objective of the project is to develop understanding of the barriers face disabled people through the sharing of research findings, practice and policy in both countries. In addition to developing sustainable research relationships across the two universities, the project will produce a number of outputs which would be made available to disabled people, families, communities, professionals, policy makers and academics.

These outputs will also be employed to further the understanding, creation as well as advancement of theories of disabling and inclusive forms of society. Psychologists, sociologists and social workers are represented in the research teams. As such, these different professional and disciplinary standpoints will help to create an international and culturally sensitive perspective of disability studies.

The project will run for two years from August 2008 to August 2010.

UNIMAS-METADOME Commercialisation MoU

UNIMAS graduate Maznizaharahayu Roslee signed a commercialisation MOU with Metadome Sdn Bhd. a mobile content specialist company, at the Sime Darby Convention Park, Bukit Kiara. Maznizaharahayu, who had earlier completed a Bachelor of Computer Science at the Faculty of Computer Science & Information Technology, was the grand prize winner of Mobile Content Challenge 2007. Maznizaharahayu and her fellow FOCUS-IT team member, Siti Khadizah, won the prize money of RM30,000 with their mobile application Halal Pro 1.0. Halal Pro 1.0 uses barcode images and Multimedia Messaging Service (MMS) to verify halal food products. Mr Ferhad, the Managing Director of Metadome, who was the mentor for the FOCUS-IT team in the competition, represented Metadome in the MOU signing ceremony.

The objective of the MOU was to facilitate the improvement of the product to a commercialisable standard. The MOU signing ceremony was held as part of the Mobile Content Challenge 2008 launching ceremony, which was officiated by YB Dato' Joseph Salang, the Deputy Minister of the Ministry of Energy, Water and Telecommunications.

UNIMAS-SEB-JKR MoU and MoA

On 26 September 2008, UNIMAS, Sarawak Energy Berhad (SEB) and Jabatan Kerja Raya (JKR) Sarawak signed a Memorandum of Understanding (MoU) at Wisma SESCo.

The MOU which encompasses collaboration in research and development in Sarawak, was signed by UNIMAS Vice-chancellor Prof Dr Khairuddin Ab Hamid, SEB Group Managing Director Tan Sri Datuk Amar Abdul Aziz Dato Husain and JKR Sarawak Director Datu Hubert Thian Ching Hui.

With the signing of the MOU, UNIMAS, SEB and JKR Sarawak will undertake collaborative research activities, whereby particular emphasis will be placed on the development of competency, skills enhancement and professional advancement.

In conjunction with the MOU, SEB also signed an agreement with UNIMAS to conduct joint research and consultancy work in the mapping of tidal energy and solar concentration in Sarawak.

STAKEHOLDER SPEAKS

Sarawak may have been late in establishing a university but it has a long tradition of scientific research. The genesis of this tradition might have been the intellectual curiosity of Alfred Wallace who came to Sarawak in 1856 to study the Orang Utans that eventually contributed to his seminal paper which was read by Darwin, and later became known as the theory of evolution.

Wallace saw the need of a museum to facilitate scientific research on Sarawak's natural history. It took 30 years to realise Wallace's dream when Charles Brooke opened a small gallery of natural history in 1886 that was the precursor of the Sarawak Museum. It was only in 1891 that the Sarawak Museum enjoyed its own building, one of the earliest concrete buildings in Sarawak with its curious architecture drawn by Charles Brooke's valet.

Most of the curators then were graduates from either Oxford University or Cambridge University. Gary Maitland who studied Malaysian museums for his PhD thesis in 1998 wrote, "The claim by Sarawak Museum curators that the Museum was the centre of Bornean scientific research remained valid" and "developed into a renowned international natural history museum". Such a view is shared by Prof Abdul Halim Ali of Nusantara Chair at the Institute of East Asian Studies, UNIMAS, who described the Sarawak Museum as a proto university of Sarawak.

The Sarawak Museum is the second oldest museum in the country. Now, after more than a century, the Sarawak Museum has developed a library to contain the best collections on Borneo. Among the many classical books on the Malay Archipelago, it prides itself in having a copy of Marsden's Malay-English Dictionary (first edition, printed in 1812) which was originally owned by Charles Brooke.

From its collection of natural history, the library later expanded into history, archaeology, and anthropology of Borneo, Malay Archipelago, and Southeast Asia. This, of course, puts focus on cultural studies that is relevant to Sarawak and echoes the concept of cultural zones expounded by the renowned French annales historian, Fernand Braudel. The library remains popular with many researchers from around the world who are interested in Borneo studies. Their theses are a valuable collection in the library.

By 1911, John Moulton, succeeded in convincing Charles Brooke to support the publication of Sarawak Museum Journal an avenue to disseminate research findings related to Borneo. Except for an absence of several years, the journal continues to be published and has succeeded in attracting an international audience. In 2008, the Science Foundation in Paris has put the journal in the European Research Index for Humanities List and that augurs well for local and foreign scholars who wish to get greater recognition for their publication.

As in the old museum tradition, curators of the Sarawak Museum are expected to conduct research and write short papers from time to time; although their main function is to collect specimens and artefacts. For the Sarawak Museum, its declared mission is to focus only on Borneo, the third largest island in the world.

With the opening of UNIMAS in 1993, the torch of scientific research and scholarly pursuits should burn even brighter.

Datu Sanib Said, Director, Sarawak Museum

RESEARCH TOOLS & TECHNOLOGIES IN UNIMAS

Scanning Electron Microscope

The scanning electron microscope (SEM) scans a sample surface with a high-energy beam of electrons to produce an image.

The electrons interact with the atoms in the sample producing signals that contain information about surface topography, composition and properties such as electrical conductivity.

There are many advantages in using the SEM. The SEM has a large depth of field, which allows a large amount of the sample to be in focus at one time. The SEM also produces high resolution images. Preparation of the samples is relatively easy since most SEMs only require the sample to be conductive.

The combination of higher magnification, larger depth of focus, greater resolution, and ease of sample observation makes the SEM one of the most frequently used instruments in research today. The types of signals produced by SEM include secondary electrons, back scattered electrons characteristic x-rays, light (cathodoluminescence), specimen current and transmitted electrons.

High Performance Liquid Chromatography

High performance liquid chromatography (HPLC), a highly improved form of column chromatography, is a separation method for isolating and distinguishing closely related components in a sample mixture. The sample is introduced into the separation system via an injection port and transported within a mobile liquid phase, through a narrow tube by high pressure.

The components within the mixture are then separated within this tube based on its reaction with the chemical components in the tube. The compounds that interact strongly with the component in the tube flow slowly form the tube and vice versa. Due to the different roles of flow between the individual components of the mixture, the sample components are separated and emerge from the column at different times. These components are then identified qualitatively and or further analysed quantitatively using an appropriate detector.

This analytical system is popular because it is non-destructive and may be applied to heat sensitive compounds. It is also a very sensitive technique since it incorporates a wide choice of detection modes.

SEMINARS & CONFERENCES

5th International Cyberspace Conference on Ergonomics

The 5th International Cyberspace Conference on Ergonomics (CybErg'08) was organised by Faculty of Computer Science and Information Technology, Faculty of Cognitive Sciences and Human Development and Faculty of Applied and Creative Arts, on 15 September - 15 October 2008.

The conference was first initiated based on the principle of internationalising ergonomic and increasing the quality of ergonomics discussion by making conference attendance easier, quicker and far cheaper than face-to-face conferences. The virtual conference also enables discussions and knowledge to be immediately accessible all around the world at the click of a mouse.

10th Malaysian Society of Applied Biology Symposium

The 10th Malaysian Society of Applied Biology was held at Merdeka Palace Kuching from 6 - 8 November 2008. Officiated by Deputy Minister of Science, Technology and Innovation, Haji Fadillah Bin Haji Yusof, the two-day symposium was jointly organised by Faculty of Resource Science and Technology, UNIMAS, the Malaysian Society of Applied Biology and Universiti Kebangsaan Malaysia. Citing the vast forest area of native rainforest, forest reserves, wildlife sanctuaries and unexplored jungles. Haji Fadillah pointed out that these remain a huge potential and reserves for the advancement of scientific knowledge, wealth creation and societal well-being.

With the theme, Realization of Biotechnology Potentials Through Applied Biology, the symposium saw a gathering of 268 participant from all institutions of higher learning in Malaysia and various government agencies.

2009 International Symposium on Electrohydrodynamics (ISEHD2009)

The Faculty of Engineering, UNIMAS will be organising the 2009 International Symposium on Electrohydrodynamics (ISEHD2009) from 25 to 28 March 2009 in Kuching, Sarawak, Malaysia. Co-sponsored by the International Electrostatic Assembly, the main objective of the meeting is to promote international cooperation and technological progress based on the interaction between electrical and fluid mechanics.

In line with the objectives outlined above, the main theme of the conference is "Advances and Innovations in Electrohydrodynamics". Lectures will also be given by distinguished scientists. Included are panel session on EHD atomization and their advanced applications and a round table session on Advanced Flow and Thermal Diagnostic techniques for EHD.

The last symposium, ISEHD2006 was held successfully from 4-6 December 2006 by the Faculty of Engineering, University of Buenos Aires, Buenos Aires, Argentina.

6th International Conference on Information Technology In Asia 2009

The Faculty of Computer Science and Information Technology will be holding the 6th International Conference on Information Technology In Asia 2009 (CITA 2009) from 6 - 9 July 2009. CITA covers various areas such as data mining, high performance computing, image processing, distributed computing, language technology, wired and wireless technologies.

The main aim of the conference is to examine the continuing roles of ICTs within the prevailing challenges of development faced by the region and to investigate how the technology can be adapted to improve local needs as well as to bring technology within reach of the communities. Researchers and industry practitioners in these fields are invited to participate and collaborate with experts in this conference. The conference has been organised biennially since 1999.

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Wishing our readers a happy,

productive and successful 2009

RESEARCH CONTACTS

The following are contact emails and telephone extensions (082-581000 through operator; or 082-58 followed by the extension number for direct dialing) of officials/researchers in-charge of various research disciplines at UNIMAS.

Vice Chancellor

Prof Dr Khairuddin Ab Hamid
khair@cans.unimas.my (ext: 1111)

Deputy VC (Research & Innovation)

Prof Dr Peter Songan
songan@cans.unimas.my (ext: 1122)

Faculty Of Resource Science & Tecnology

Prof Dr Shabdin Mohd Long
lshabdin@frst.unimas.my (ext: 3180)

1. Molecular Biology
   Assoc Prof Dr Edmund Sim Ui Hang
   uhsim@frst.unimas.my (ext: 3185)

2. Plant Science and Environmental Ecology
   Assoc Prof Dr Sepiah Muida
   msepiah@frst.unimas.my (ext: 2949)

3. Zoology
   Prof Dr Mohd Tajuddin Abdullah
   tabdullah@frst.unimas.my (ext: 3026)

4. Chemistry
   Assoc Prof Dr Zaini Assim
   zaini@frst.unimas.my (ext:

5. Aquatic Science
   Dr Samsur Mohamad
   msamsur@frst.unimas.my (ext: 2941)

Institut Of Biodiversity & Environmental Conservation

Assoc Prof Dr Andrew Alek Tuen
aatuen@ibec.unimas.my (ext:2295)

Faculty Of Computer Science & Information Technology

Prof Dr Narayanan Kulathuramaiyer
nara@fit.unimas.my (ext: 3767)

1. Computational Science and Matemathics
   Dr Shapiee Abdul Rahman
   sar@fit.unimas.my (ext: 3664)

2. Computing and Software Enginering
   Dr Edwin Mit
   edwin@fit.unimas.my (ext: 3636)

3. Computer System & Communication Technology
   Assoc Prof Dr Tan Chong Eng
   cetan@fit.unimas.my (ext: 3776)

4. Information System
   Sharin Hazlin Huspi
   hshazlin@fit.unimas.my (ext: 3772)

Faculty Of Engineering

Assoc Prof Dr Wan Hashim Wan Ibrahim
wiwhashim@feng.unimas.my (ext:3325)

1. Mechanical Engineering
   Syed Tarmizi Syed Shazali
   starmizi@feng.unimas.my (ext:3268)

2. Civil Enginering
   Dr Siti Noor Linda Taib
   tlinda@feng.unimas.my (ext:3337)

3. Electronics Engineering
   Dr Wan Azlan Wan Zainal Abidin
   wzaazlan@feng.unimas.my (ext:3339)

4. Chemical Engineering
   Dr Rubiyah Hj Baini
   rubiy@feng.unimas.my (ext:3338)

Faculty Of Medicine & Health Sciences

Tan Sri Datu Prof Dr Mohd Taha Arif
amtaha@fmhs.unimas.my (082 292111)

1. Surgery
   Assoc Prof Dr Tin Win
   wtin@fmhs.unimas.my (082 292207)

2. Medicine
   Dr Ye Nyunt
   yenyunt@fmhs.unimas.my (082 292211)

3. Paraclinical Science
   Dominic Dado Sagin
   dsagin@fmhs.unimas.my (082 292250)

4. Basic Medical Science
   Dr Muna Sabri
   smuna@fmhs.unimas.my (082 292241)

5. Orthopaedics
   Dr Chan Wai Hong
   whchan@fmhs.unimas.my (082 292257)

6. Paediatrics
   Dr Mohamaed Ameenudeen B.A Sultan Abdul Kadera
   kmameenudeen@fmhs.unimas.my (082 292259)

7. Obstetric & Gynaecology
   Dr Awi ak Idi
   iawi@fhmhs.unimas.my (ext: 292263)

8. Community Medicine and Public Health
   Assoc Prof Dr Kamaluddin Bakar
   bkamaludding@fmhs.unimas.my (082 292382)

9. Nursing
   Jane Buncuan
   jbuncuan@fmhs.unimas.my (082 292284)

10. Ophthalmology
    Prof Dr Chua Chung Nen
    cnchu@fmhs.unimas.my (082 292221)

11. Psychological Medicine
    Prof Dr Mohd Fadzillah Abd Razak armfadzillah@fmhs.unimas.my (082 292113)

12. Family Medicine
    Dr Lee Ping Yien
    bylee@fmhs.unimas.my (082 292247)

13. Radiology
    Dr Ahmad Faizal b Mohammad Ali
    maafaizal@fmhs.unimas.my (082 292270)

14. Pathology
    Assoc Prof Dr Lela Suut
    slela@fmhs.unimas.my (082 292269)

Faculty Of Applied & Creative Arts

Dr Hasnizam bin Abdul Wahid
awnizam@faca.unimas.my (ext:1436)

1. Design Technology
   Dr Nazlina Shaari
   snazlina@faca.unimas.my (ext: 1343)

2. Visual Art and Technology
   Zulkalnain Zainal Abidin
   nine@faca.unimas.my (ext: 1342)

3. Performing Arts and Production Technology
   Abdul Riezal Dim
   driezal@faca.unimas.my (ext: 1344)

4. Liberal Arts
   Qistina Donna Juleng Lee
   idjuleng@faca.unimas.my (ext:1321)

Faculty Of Cognitive Sciences & Human Development

Dr Shahren Ahmad Zaidi Adruce
azshahren@fcs.unimas.my (ext: 1569)

1. Cognitive Science
   Dr Siti Norazilah Mohd Said
   mashamini@fcs.unimas.my (ext: 1518)

2. Human Resource Development
   Dr Azman Ismail
   iazman@fcs.unimas.my (ext: 1558)

3. Counselling
   Salmah bt Mohamad Yusof
   mysalmah@fcs.unimas.my (ext: 1531)

Faculty of Economics & Business

Prof Dr Shazali Abu Mansur
mshazali@feb.unimas.my (ext: 2280)

1. Economic
   Prof Dr Ahmad bin Shuib
   shahmad@feb.unimas.my (ext: 2428)

2. Business
   Prof Dr Abu Hassan bin Md Isa
   miahassan@feb.unimas.my (ext: 2356)

Faculty of Social Sciences

Assoc Prof Dr Spencer Empading Sanggin
spencer@fss.unimas.my (ext: 2255)

1. Sociology and Anthropology
   Dr Ling How Kee
   lhkee@fss.unimas.my (ext: 1973)

2. Politics and International Relation
   Dr Neilson Ilan Mersat
   mnilan@fss.unimas.my (ext: 2245)

3. Development Studies
   Mohd Suhaidi Salleh
   smsuhaidi@fss.unimas.my (ext: 1979)

Institute of Community Health & Medicine

Prof Dr Mary Jane Cardosa
jcardosa@ihcm.unimas.my (ext: 2347)

Institute of East Asian Studies

Prof Datuk Dr Abdul Rashid Abdullah
ara@ieas.unimas.my (ext: 2464)

Centre for Language Studies

Dr Soubakeavathi Rethinasamy
rsouba@cls.unimas.my (ext: 1749)

Centre for Water Research

Prof Dr Lau Seng
lauseng@frst.unimas.my (ext: 3191)

Malaria Research Centre

Prof Dr Balbir Singh
bsingh@fmhs.unimas.my (082 292256)

Centre for Rural Informatics

Prof Dr Peter Songan
songan@cans.unimas.my (ext: 1122)

Centre for Image Analysis & Spatial Technologies

Prof Dr Wang Yin Chai
yewang@fit.unimas.my (ext: 3796)